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Congress Announcement

The 44th International Congress for the History of Pharmacy, organised by the International Society for the History of Pharmacy and hosted by the American Institute of the History of Pharmacy, will be held in Washington DC, United States, from

Thursday 5 to Sunday 8 September 2019

The theme of the Congress will be 'The Pharmacist and Quality Medicines'. Abstracts are invited for podium and poster presentations that touch on the interrelated themes of the pharmacist's work and the profession's efforts to provide medicines of good quality.

The Congress will be held at the Capital Hilton Hotel in downtown Washington, and is underwritten by a generous grant from the US Pharmacopoeial Convention.

For more information see http://www.44ichp.org.

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ARTICLE

Joseph Clutton, c.1695-1743: A Georgian apothecary

Christopher J. Duffin

Abstract

Joseph Clutton (c.1695-1743) was a Georgian apothecary and businessman who produced the Oglander materia medica cabinet. A committed Quaker, he ventured into print on two occasions. The first (1729) concerned a proprietary febrifugal tincture. The second (1736) examined the infamous antimonial 'Pill and Drop' promoted by the quack Joshua Ward (1685-1761). This drew Clutton into a protracted war of words with Ward and his brother in the *Grub Street Journal*. Clutton was also a keen botanist. Following his death, his wife Mary and then his son Morris continued the business, which was eventually fully owned by Joseph's former apprentice, Thomas Corbyn (1711-1791).

Introduction

Background information on Joseph Clutton and details of his early life are relatively sparse. He was born around 1695 at Pensax, a small hamlet in northwest Worcestershire, several miles south west of Kidderminster.[1] His parents were John and Mary Clutton. In 1709 Joseph was apprenticed as an apothecary to Benjamin Morris (dates unknown), formerly of Hereford. The apprenticeship lasted eight years, and would have required a formal, legally binding indentureship, signed by a Justice of the Peace. Normal practice meant that a sum of money, known as a premium or consideration, was paid by the parents to the apothecary, who undertook to train the apprentice, as well as to clothe, feed and lodge him. The eight year period was necessary in order to satisfy the Statute of Labourers and Apprentices of 1563, which required that those who wished to practise a craft or 'mystery' complete an apprenticeship of at least seven years duration.

Benjamin Morris was a Quaker convert. Joseph Clutton was also a Quaker, but it is not clear whether he came from a Quaker family or converted. Quakerism (more formally, the Religious Society of Friends) had its roots in the era of the English Civil War (1641-1652); the unrest and depredations of these times led to the emergence of numerous dissenting religious groups. George Fox (1624-1691), founder of the group, was imprisoned in Worcester Castle in 1673 for fourteen months because he refused to swear the oath of allegiance and supremacy (recognising the Monarch as the Supreme Governor of the Church of England) and was therefore guilty of treason. The Quaker Church in the Worcester area flourished and grew in spite of the air of religious intolerance and outright persecution; at the time Joseph Clutton was starting his career the sect was only around 50 years old, and it was no small thing to espouse its name and teachings.

As soon as his apprenticeship was concluded and he was 'freed' Joseph married Mary (c.1696-1754), the daughter of Richard Morris and his wife Hester from Rugeley, a historic market town in Staffordshire. The wedding took place on 4 May 1725 in Stafford itself.[2] Richard Morris was also a Quaker and an apothecary, and it seems likely that he was a relative of Benjamin Morris. Indeed, Richard seems to have been very devout and well educated, having written a religious tract around 1742, although it was not published until 1798.[3] Many indentures had restrictions imposed on the apprentice, often including an injunction against marriage – perhaps this accounts for Joseph's matrimonial haste on becoming a free man.

Clutton's wife was also clearly both devout and well educated; she wrote a poem entitled *A Prospect of Death, a Pindarick Essay* (i.e. a poem with set meter and rhyme), published before they were married, in 1721.[4]

The next we see of Joseph Clutton is some fifteen years later as, by 1732, he appears to be in partnership with his former Master in Holborn in London. They are listed as joint owners of a property on the north side of Holborn, as well as owning property in the block between Warwick Court and Brownlow Street, both of which branch off what is now the western end of High Holborn. I have been unable to find the exact premises from which they traded, but it is clear from a later (1749) document that their location was known at the time as 'The Bell and Dragon' (Figure 1).[5]

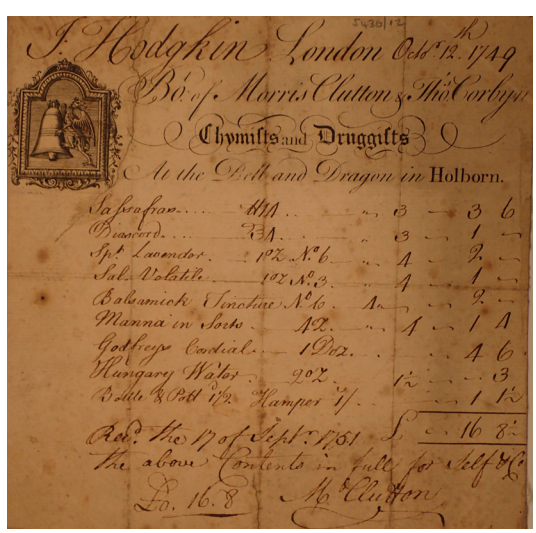
J. Hodgkin London Octo 12. 1749
Bo of Morris Clutton & Tho Corbyn
Chymists and Druggists
At the Bell and Dragon in Holborn.
Safforan ... 3 ... 3 6
Diascord ... 3 ... 1 ...
Spt Lavendr ... 1oz No 6 ... 1 ... 2 ...
Sal Volatile ... 1oz No 3 ... 1 ... 1 ...
Balsamick Sinotine No 6 ... 1 ... 9 ...
Manna in Sorts ... 1oz ... 1 ... 1 1
Gastreps Cordial ... 1 Doz ... 4 6
Hungary Water ... 2oz ... 1/2 ... 3
Bottle & Pott 1/2 Hamper 1/ ... 1 1/2
Rec: the 17 of Sept: 1751 £ ... 16 8
the above Contents in full for self & Co
Co. 16. 8 M: Clutton

Figure 1. *Receipt given by Morris Clutton, Joseph's Clutton's son, and Thomas Corbyn for goods supplied from their trading premises at 'The Bell and Dragon', Holborn, London. (Source: Wellcome Library, London, MS. 5436/12)*

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No likeness exists of Joseph Clutton, so far as I am aware, but his signature is preserved in a document concerned with securing premises for a laboratory to be associated with his business (Figure 2).[6] The land on which the laboratory was built was originally leased by William Vernon, a distiller, to Wendover Jay and Richard Gowland, druggists of Holborn (8 April 1726). The piece of land, measuring 40 feet by 51 feet (12.20m x 15.55m), was 'scituate on the north side of the said William Vernon's dwelling house in Dorrington Street', and was made available 'for the term of sixty one years for and in consideration of the yearly rent of five pounds clear of all taxes' so they could build a 'Counting House and an Elaboratory ... for the making of chemical preparations'.[7]

Jay then assigned his share in the laboratory and other buildings on the site on 23 November 1726 to Gowland, who in turn assigned them to Joseph Clutton on 24 March 1730.[8] The area was developed, and houses were built in Dorrington Street in 1719-1720, as part of the Coldbath Estate in the area then known as Coldbath Fields. This lay adjacent to the Cold Bath, a fenced spring in Coldbath Square, developed for medicinal cold bathing purposes.[9]

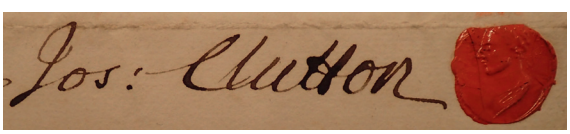

Figure 2. *Signature and seal of Joseph Clutton on a document dated 19 March 1736. (Source: Wellcome Library, London, MS.5435/1/5)*

Quaker values and religious activity

Historically, the Quakers count many successful businessmen and scientists amongst their number, and their members characteristically had a strongly philanthropic outlook. Joseph Clutton embraced these ideals. As his business grew, he was able to take on a succession of young apprentices, all of whom seem themselves to have been Quakers – James Smith of Shropshire in 1717, Eldridge Beale shortly afterwards, and Thomas Corbyn from Worcester in 1728.

Clutton was also a regular benefactor of various Christian causes, many of which – despite the dissenting origins of Quakerism – revealed in him a strong sense of ecumenism. For example, he is listed in 1746 as having donated a guinea to the Society for Promoting Christian Knowledge (SPCK), an Anglican mission organisation established in 1698.[10]

He also had philanthropic interests in medical causes. Bath – the site of the famous Roman baths and their therapeutic waters – underwent significant redevelopment and expansion during the 1700s, rapidly becoming established as a health resort and fashionable meeting place for members of high society. This saw a significant increase in numbers both of residents and visitors to the city. In 1742, the Bath General Infirmary was opened (the building is now the Royal National Hospital for Rheumatic Diseases) for 'the Cure and Maintenance ... of poor strangers' – in other words, non-residents. Joseph Clutton responded to the appeal for donations to the tune of five guineas.[11]

Clutton was also involved with St George's Hospital in London. This began life in 1716 as the Westminster Public Infirmary in Petty France, but the need for increased space stimulated several moves of premises. Lanesborough House at Hyde Park Corner (Figure 3) (now the luxury Lanesborough Hotel), then in open countryside, was chosen in 1732 and the new St George's Hospital occupied three floors, caring for 30 patients (drawn from 'the honest and laborious poor') in separate male and female wards.[12] Inexorable growth meant to say that by 1744 it had expanded to fifteen wards catering for over 250 patients. Joseph Clutton was a Governor of the Hospital.

Figure 3. *St George's Hospital, Lanesborough House, Hyde Park Corner. Engraving after William Wilkins. (Source: Wellcome Library, London)*

Henry Pickworth (c.1673-c.1738) was a religious controversialist who was openly hostile to the Society of Friends. He actually joined the Quakers in his youth and was appointed to roles of responsibility in the monthly meetings at Waddington in Lincolnshire.[13] Following a debate with the disenchanted Francis Bugg (1640-1727) Pickworth began to espouse his highly critical views and, following Bugg's lead, began to publish anti-Quaker pamphlets and tracts. He attended the yearly meetings in London where he sought to lodge his protests and give inflammatory addresses; he was generally refused an audience. Amongst his publications

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was the 1732 *Narrative to the Bishop of Lichfield and Coventry*, outlining what he considered to be acknowledgements of gross errors in Quaker beliefs by the prominent Quakers, William Penn (1644-1718) and Richard Claridge (1649-1723). Joseph Besse responded.[14] Clutton found himself to be the only living Quaker referred to in Pickworth's volume, where it was asserted that he interrupted Richard Claridge's preaching at a funeral by tugging forcefully on his sleeve. Clutton was forced to deny the intervention, and his certificate to that fact was included as part of an appendix in Besse's rebuttal.[15]

Clutton is also listed as a subscriber to Alexander Jephson's volume on *The Religious Observation of the Lord's Day*, which promoted strict devotional observance of the Sabbath.[16]

A manuscript survives in the Library of the Religious Society of Friends which purports to be a copy of an essay by Joseph Clutton. Originally written in 1721, the piece is a refutation of arguments that had been proposed for complying with the Tythe Laws.[17]

Febrifugal Tincture

In 1704 apothecaries were awarded the legal right to see patients, and therefore effectively to practice physic (i.e. medicine). The proviso was that they should charge for their medicines only, not for the consultation. Potentially, this was a double-edged sword; conscientious apothecaries could accumulate considerable diagnostic experience and gain valuable feedback concerning the effects of their prescriptions, but many were laid open to the charges of over-prescription and over-charging in their enthusiasm to make money.

In 1729 Joseph Clutton ventured into the world of publishing. His first book was concerned with the treatment of fevers - *A Short and Certain Method of Curing Continu'd Fevers*.[18] Dedicating the volume to the Royal College of Physicians – a further nod towards claiming medical legitimacy – Clutton indicated that he was stimulated to address the problem because of 'the sickliness of the present season, and also of the last three years', which had affected him personally in unspecified ways (perhaps related to the deaths of some of his children; see below). He felt compelled by his faith to share his success in treating fevers, claiming a 95% rate of cure, and to publish the medical receipt which he used for general benefit rather than keeping the details of the tincture to himself.

His preface to the volume reveals a nervousness about the reception of his ideas, observing that 'some may be displeas'd at my writing a treatise of physic, who am no physician'.[19] Insisting that he employed an honest, empirical approach exercised over a period of several years, and involving a significantly large number of cases to refine his design of a new medicine, he also learned how to supplement his treatment with other, often more established therapies.

Clutton was primarily concerned with the treatment of what were called 'Continued Fevers', one of two classes of fever generally recognised in Georgian times (the other being 'Intermittent Fevers'). The symptomology of Continued Fevers included 'lassitude, languor and anxiety, followed by rigors' (severe shivering and often uncontrollable shaking accompanied by a feeling of coldness by the patient, and associated with a marked rise in body temperature).[20] Clutton clearly followed the prevailing doctrine of critical days which indicated that there were certain days (usually days 3, 5, 7, 9, 14, 17 and 21) following the initial development of the symptoms when disease progression went through critical stages, and therefore required special vigilance on the part of the attending physician. This concept can be traced back to the ancient Greeks, where it also had an astrological dimension.

During the first five days of a fever, Clutton recommended the use of emetics and antimonials ('if a skilled person is present'). High fever accompanied by considerable inflammation, a strong and rapid pulse, florid complexion and 'high colour'd' urine warranted the prescription of his proprietary tincture. He recommended the patient should 'drink of it plentifully without restraint', remarking that 'about three quarts taken in twenty four hours is generally enough for a full grown person'. The intended action of his julep was 'to bring a sudden crisis by urine and sweat'.

The recipe itself comprised sulphurated oil, sulphuric acid, salt, ethanol, and spirits of Angelica root, Serpentaria root and Cardamom seeds. These ingredients were added to clear spring water, with sugar added for taste. Serpentaria refers to the Virginia Snakeroot, *Aristolochia serpentaria*, which contains a number of physiologically active compounds. It has a long history of use in folk medicine as a febrifuge and anti-convulsive, but its efficacy remains unproven. Sir John Hill (1714-1775), a near contemporary of Joseph Clutton, indicates that *Aristolochia* was esteemed at the time as 'Diuretic, Diaphoretic and Alexipharmic ... certainly good in Fevers, in hysteric Complaints and against Worms'.[21] Angelica – *Angelica archangelica* – an umbellifer, has a similarly long pedigree as a folk medicine.[22] Hill reports that it was held to be 'stomachic, cordial and sudorific, and is greatly recommended against pestilential diseases, and the Plague itself'.[23] Cardamom seeds were indicated by Hill as assisting digestion, strengthening the head and stomach, promoting menstruation and having diuretic and carminative properties (relieving flatulence).[24]

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Clutton also discussed other cooling medicines, but his greatest praise was reserved for 'Bezoar minerale'. This name referred to either of two materials. In this case, the most likely reference is to an alchemical name for a precipitate of antimony (V) pentoxide (Sb_2O_5), which was produced by the action of aqua fortis (nitric acid) on butter of antimony (antimony trichloride, $SbCl_3$).[25] This preparation was named from the assumption that, like Bezoar stones, it possessed the ability to counteract poisons. The alternative reading of Bezoar Minerale is the geological material collected from Sicily; ferruginous concretions with a laminated internal structure, these were varieties of rattle stone, much like Aetites.[26] Hill reports that the powder obtained from these stones, also known as *Lapis Bezaordicus fossilis*, was used to treat malignant fevers, smallpox and measles.[27]

Clutton's book clearly met with some success, as it went to second (1735) and third (1748) editions, and was later (1752) translated into French.[28] The content does not seem to have been extensively incorporated into pharmacopoeias, although Franz Schwediauer (1748-1824), who qualified in Vienna and then travelled to England and Edinburgh before finally settling in Paris, did give details of *Tinctura Febrifuga Cluttoni* in his *Pharmacopoeia Medici Practici Universalis*.[29]

Botany

Clutton was also a correspondent of the botanist and antiquary, Richard Richardson (1663-1741). Richardson studied alongside Herman Boerhaave (1668-1738) at Leiden, and submitted a thesis on Tertian fever for his MD in 1690. A man of considerable independent means, Richardson travelled extensively collecting plant specimens, specialising in mosses and lichens, and corresponded with many eminent contemporary botanists and antiquaries. Many of his letters were collected in twelve folio volumes, now held by the Bodleian Library in Oxford.[30]

A selection of the correspondence was edited by Dawson Turner (1775-1858); the collection includes a single letter by Joseph Clutton, dated 13 April 1726.[31] Clutton thanked Richardson for the parcel of plants just received from him, being particularly grateful for the mosses, including exotic examples, all carefully identified – 'my own collection being but poor therein, although they are the most beautifull part of Botany'. Clutton also indicated that he had received help in this regards from Isaac Rand (1674-1743), the recently (1725) appointed Director of the Chelsea Physic Garden. Clutton made the observation that

> The Botanick art is greatly encreasing at London; and Dr Sloane's gift of the Phisick-Garden to our Company [Worshipful Society of Apothecaries] for ever [this took place in 1721], has caused them to apoynt one of the Company, at present, Rand, to demonstrate the Officinales every last Wednesday (so call'd) in the month, at the said place.

Clutton was excited about plans by the Society of Apothecaries to erect some new buildings to supplement the work of the Gardens, and sent Richardson a copy of them. He clearly knew Richardson personally, rather than just as a long-distance correspondent, as he finishes his letter

> Please to let thy wife know, I still remember the favour she shewed to us when in Yorkshire, and her brother and sister Farrant when in London, to whom, with thyself, I own myself greatly obliged, and end with great esteem.

Figure 4. *The Oglander materia medica cabinet. (Source: Inventory Number 25401. © Museum of the History of Science, University of Oxford)*

Oglander Cabinet

The so-called Oglander cabinet – currently held by the Museum of the History of Science in Oxford (inventory number 25401) – is the only surviving item of pharmaceutical material culture pertaining to Joseph Clutton of which I am aware (Figure 4). This materia medica cabinet was originally made for Thomas Jobber of Aston (Shropshire), probably a relation of Joseph Clutton. The Cluttons were an extended, well-to-do, armigerous (entitled to heraldic bearings such as a coat of arms) dynasty, well established in the Pensax area. Thomas Jobber is identified in *Burke's Peerage* as the father of Mary who married a John Clutton; he may have been Joseph Clutton's grandfather.[32]

The materia medica collection of 1,032 specimens is housed in a six-drawer mahogany cabinet measuring approximately 114 cm high, 68.6 cm wide and 45.7 cm deep. The drawers are organised from top to bottom as follows: (1) 'Lign: Cort: Gum: Succ' (woods, barks, gums and juices); (2) 'Flores: Semin: Fruct' (flowers, seeds and fruits); (3) 'Radices' (roots).; (4) 'Metalla Lap. Pret. Min' (metals, precious stones and minerals); (5)

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'Partes Anim.' (animal parts); (6) 'Anim. & Par.' (animal parts).

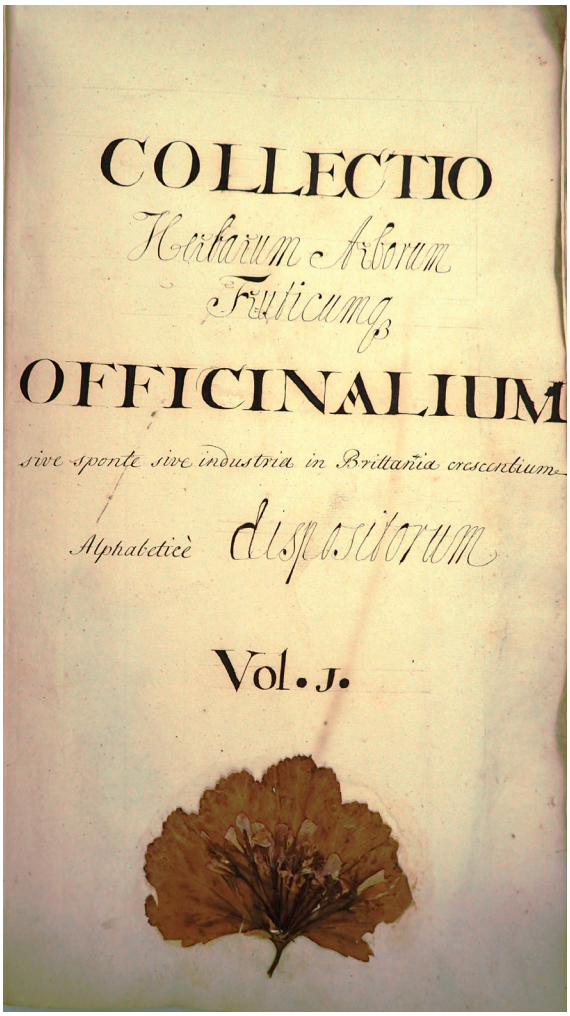

Figure 5. *Title page of the Hortus siccus in the Oglander materia medica cabinet. (Source: Inventory Number 25401. Photograph by the author, reproduced courtesy of Museum of the History of Science, University of Oxford)*

There is also a two-volume herbarium (*hortus siccus* or 'dried garden') containing 460 dried and pressed plants (Figure 5). The drawers are divided into separate labelled compartments (Figure 6). There may originally have been an accompanying itemised inventory of medicinal simples. Each compartment is fully lined with a paper insert, and the liquid specimens are housed in cut flint glass bottles with brass caps.

The cabinet was constructed and the ingredients assembled in 1729 to 1730, and the original itemised invoice indicates that the total cost, including the 60 days labour required to assemble, arrange and package the specimens, was £21/6s/8d (Figure 7).

Figure 6. *A representative drawer (Gums and Resins) from the the Oglander materia medica cabinet. (Source: Inventory Number 25401. © Museum of the History of Science, University of Oxford)*

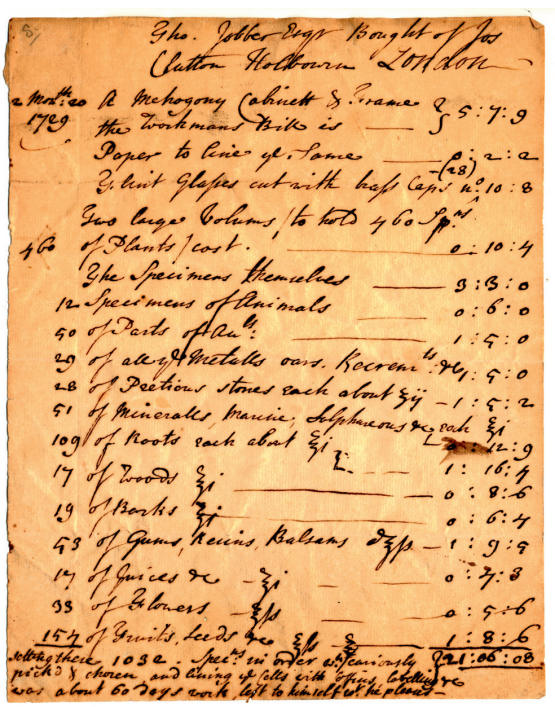

Figure 7. *Itemised receipt for the Oglander Cabinet from Joseph Clutton, dated 1729. (Source: Inventory Number 25401. © Museum of the History of Science, University of Oxford)*

Somehow, the cabinet came into the hands of Dr John Oglander (1737-1794), a cleric, about whom relatively little is known, but who served as Warden of New College Oxford from 1768 until his death.[33] The cabinet then passed to New College where it came to the attention of the historian of science, R. T. Gunther (1869-1940), founder of the Museum of the History of Science in Oxford, who wrote a brief note on it.[34] Gun-

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ther then arranged for it to be received into the Museum of the History of Science collections as a permanent loan.

Figure 8. *Portrait of Joshua Ward (1685-1761). (Source: Creative Commons)*

Clash with Joshua Ward

Clutton's second venture into publishing tackled a more contentious issue – the question of the supposed efficacy of Joshua Ward's 'Pill and Drop'. Joshua Ward (1685-1761) was the son of an Alum works owner. The presence of a large, claret-coloured birthmark on the right side of his face gave rise to his being called 'Spot' Ward (Figure 8). He is believed to have worked with his brother as a drysalter in London, an occupation which involved dealing in a range of chemical products, including salt, dyes, preservatives, and glue.

During the course of his work, he might well have purchased materials which, in other contexts, were employed therapeutically – cochineal, galls, and various woods. In 1715 it is claimed that he fled to France over sympathies with the Jacobite cause, as well as becoming the Member of Parliament for Marlborough in Wiltshire, and that without a single vote cast in his favour (he was later unseated on petition)! The 16 years he spent in France at Paris and near Dunkirk were not without controversy – he was sued by the widow of John Sheffield, first Duke of Buckingham and Normanby, over debts arising from the alum works which the Duke had leased to Joshua and his brother John.

Having cheated the Duke out of £70,000, John Ward was convicted of fraud and forgery; but Joshua, being inaccessible in France, escaped justice. On receiving a pardon from George II, Joshua Ward returned to London in 1734. Here his royal patronage flourished further after he re-set the king's dislocated thumb, which had formerly been believed to be gouty. He was rewarded with the use of an apartment in the almonry office in Whitehall. Ward apparently showed considerable generosity towards patients who were poor; three houses in Pimlico, near St James's Park, were converted into a hospital for the poor, and a further treatment centre was established in Threadneedle Street in the City of London. He defrayed the costs of treating the poor in this way by being rather more enthusiastic with his charges to the rich patients who he also treated.

Ward invented his eponymous medicines, the infamous Pills and Drops, whilst he was in France. Indeed, Joseph Clutton was first made aware of these remedies when, in early 1732, he saw a former patient who had just returned from France. She 'looked much better in Health than usual', and accounted for her improvement as being 'intirely owing to Mr Ward's Drop, which she had taken only twice; a pleasant Medicine, being one Drop given in a Spoonful of Sack'.[35] The effects of the medicine were that she 'felt a warm glowing all over her' followed by 'a Sweat, which increased to such a violent Degree, that it ran quite thro' the Bed down upon the Floor'.

The sweating period lasted for four hours, during which time she was 'more alert and brisk,' rather than experiencing the usual symptoms of fatigue and depression. Indeed, once the sweating phase was over, she 'got up, dress'd, went into Company, and danc'd more vigorously than usual'. Intrigued, Clutton asked the woman's husband to obtain a copy of the medical receipt. The husband obliged, and by midsummer in 1733, Clutton was in possession of a recipe which he recognised as 'Glauber's Method to concentrate Spirit of Nitre'.

Johann Rudolf Glauber (1604-1670) was an alchemist and early chemical engineer who spent much of his life producing pharmaceuticals in Amsterdam. His improved process for manufacturing nitric acid by heating potassium nitrate with concentrated sulphuric acid was established in 1648. It is worth noting that sweet spirit of nitre – essentially ethyl nitrite obtained by distilling ethanol with nitric and sulphuric acids – was also employed medicinally at the time as a diuretic, diaphoretic, antispasmodic and febrifuge. Clutton set about testing the recipe ('I try'd from 1 to 20 Drops') but

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could not duplicate the effects described by his patient, so he concluded this was not the same material as was present in the Pill or Drop.

Clutton then notes that 'about midsummer, 1734, a Gentleman, who was a great Promoter of the Fame of the Drop, and Pill ... was often in Company, speaking of the great Cures they had perform'd'. Joshua Ward had returned to England and was actively engaged in the process of puffery – overstating and exaggerating the case for his medicines by generating false praise. The July 1734 issue of *Gentleman's Magazine* gave notice that

> There was an extraordinary Advertisement this Month in the News Papers, concerning the great Cures in all Distempers perform'd with one Medicine, a Pill or a Drop, by Joshua Ward, Esq; lately arriv'd from Paris, where he has done the like Cures.[36]

The brief piece also included an ominous caveat:

> Twas said our Physicians, particularly Sir Hans Sloane, had found out his Secret; but 'twas judged so violent a Prescription, that it would be deemed Male-Practice to apply it, as he does, to old and young, and in all Cases.

Even at this early stage, doubt was being cast upon the efficacy and application of Ward's medicines, invoking the name of the renowned Sir Hans Sloane (1660-1753), the royal physician (serving Queen Anne, George I and George II), and at the time President of both the Royal College of Physicians and the Royal Society. One would have thought that this cautionary statement would have brought the matter to an end. Such was not the case, however. Perhaps the fires of controversy were stoked with lines of satirical doggerel rather typical for the times, quoted from the *Universal Spectator*, including:

> Egregious Ward, you boast with success sure
> That your one drop can all distempers cure;
> When ...

Then follows a list of potential challenges, including the ability to improve Alexander Pope's 'wit and excellence', concluding:

> Then will I think that your one drop will save
> Ten thousand patients dying from the grave.[37]

The battleground would seemingly be fought by reference to actual case histories. On 7 November 1734, the *London Evening Post* (Issue 1087) carried a note from Joshua Ward claiming to 'have hitherto declined making Public mention of the Success which has attended my Endeavours to relieve the Afflicted', but redressing the balance by attaching a testimonial from none other than Sir James Reynolds (1686-1739), then Lord Chief Baron of the Exchequer, a post which he held from 1730 to 1738.

Reynolds referred to the 'surprising Cure' effected by Ward's Drops on one of his servants, and hoped that 'the rest of the World may thereby be directed to an effectual Remedy in a very desperate Distemper, where the ordinary Prescriptions so seldom succeed'. For his part, Ward stated that Reynolds had 'an Honour done me too great not to inspire some little Vanity'; the selfless act was 'too bright to be stifled'.

Further, the *London Daily Post* for 21 December 1734 indicated that a Mrs Jones, 'ill for near six Years and Bed-ridden for near two Years' was, within ten days of taking only three of Ward's pills and drops, 'able to ride abroad, walk etc.', contrary to all expectations.

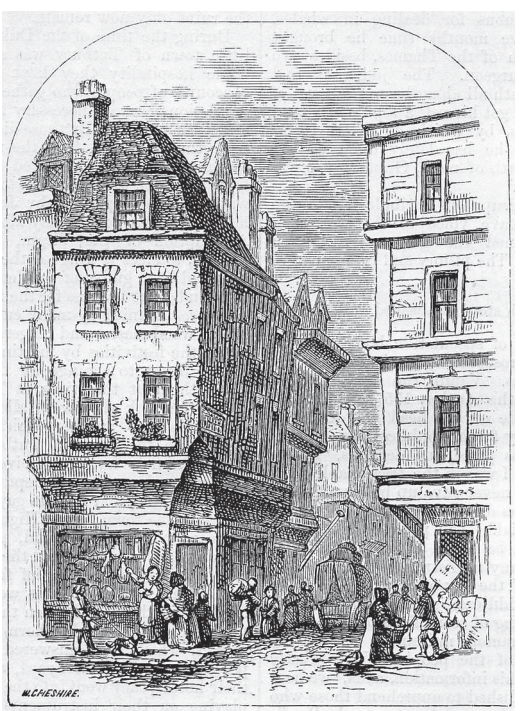

Figure 9. *Victorian view of Grub Street, from Chambers Book of Days (1884). (Source: Wikipedia)*

The counter attack was swift, and the focus of expression moved to the pages of the *Grub Street Journal*, a controversial weekly newssheet published in London from 1730 to 1738. Grub Street itself was the focus of a rather bohemian society of aspiring poets, hack writers and low-end publishers living in low-rent garrets and flophouses, in an area rich in brothels and (at times

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disreputable) coffee-houses (Figure 9). The *Grub Street Journal* had established a reputation for stoking up quarrel and controversy, using dry and acerbic wit, sardonic humour, irony, satire and personal attack as its means of facilitation.[38] Its pages were open to all-comers, especially those with an axe to grind. Exposing quacks was grist to the mill, and Joshua Ward was too good a target to miss. One critic described him as

> a pure quack, monstrously influential, and guilty of far more than commercialism and lack of professional dignity ... an ignoramus who apparently had no scruples whatsoever in administering frightful doses of violent drugs to his equally ignorant patients, and who had a genius for advertising.[39]

The opening salvo (*Grub Street Journal*, 28 November 1734) came from the pen of the otherwise anonymous 'Misoquackus', an anti-quack writer, who marshalled and presented 12 cases where the prescription of Ward's Pills and Drops had caused harm to the patient, rather than effecting a cure; in ten of these cases the outcome was death. Prescribed by Ward in cases as diverse as paralysis, scurvy, 'wand'ring pains and other small complaints', hysteric fits, rashes, phthisis (pulmonary tuberculosis), scrofula (probably a form of tuberculosis) and ague, Ward's approach to the appearance of contraindications was to administer even more Pills and Drops. Misoquackus announced that use of the medicines brought on numbness, convulsions, paralysis, deafness, 'intolerable' abdominal pain, fever, depression, extreme sweating, purging, 'vomiting almost continually', and weakness (especially of the muscles and joints).

Concluding that the medicines were poisonous, the writer went on to discuss their possible active ingredients, with potential candidates including various antimonial compounds (Glass of Antimony – crude antimony vitrified by heating to high temperatures; Liver of Antimony or *Crocus metallorum* – antimony oxysulfide, probably Sb_2S_2O; Regulus of Antimony – partially purified antimony; *Mercurius vitae*, also known as Powder of Algaroth – a mixture of antimony trichloride and antimony trioxide; Golden Sulphur of Antimony – probably antimony pentasulfide).

Misoquackus's entry drew a response from a defender of Joshua Ward's who wrote under the pseudonym Obadiah Anti-clysterpipus, identified by Hillhouse as 'a Quaker with a strong prejudice against the medical profession'.[40] In the 26 December 1736 issue of the *Grub Street Journal*, Obadiah wrote to say that 'my friend Mr Ward cured me without reward', in direct contrast to the expensive but ineffectual consultations he had with other physicians; 'I took their medicines as freely as they took my money'!

Furthermore, he asserted that over one thousand patients a week consulted Ward. Such high numbers of successful treatments seems to have been part of the puffery; Ward was later accused of hiring 'patients' for a fee of half a crown per week, instructing them as to the means of simulating the symptoms of the disease he wished to 'cure' – five shillings a day bought the services of better dressed impostors who arrived at his consulting rooms in grand style, driven in carriages which Ward also paid for.

Ward himself responded to Misoquackus's comments in the 2 January 1735 issue of the *Grub Street Journal*. He asserted that, over the previous ten months (since March 1734) he had given his remedies to 'upward of twenty thousand persons' many of whom had been 'turned out of the hospitals as incurable'. He offered to show his Journal, in which were recorded 'several extraordinary Cases where my remedies have had the good fortune to succeed', and then proceeded to challenge Misoquackus's mortal case histories on an individual basis, using affidavits to assert that the deaths could not be attributable to the use of his remedies.

Ward went on to declare that he would no longer make his medicines freely available, unless he received certification by a minister, church warden or parish overseer giving details of the patient and the condition which required treatment. The witty response to this statement was 'We ... do certify that N.N., a poor person belonging to the parish of _____ may safely undergo a hundred stools and as many vomits without any detriment to the said parish'.[41] An epigram by 'U.C.' offered the Pill and Drop as 'a convenient means of inconspicuous suicide'.[42]

At this point, Dr Daniel Turner (1667-1741) entered the fray. Turner, having served apprenticeships under several surgeons, was admitted into the freedom of the surgeons' side of the London Barber-Surgeon Company in 1691 and, twenty years later, became a licentiate of the Royal College of Physicians. He published extensively, especially on surgery, and was no stranger to pamphlet wars.[43] In 1735 Turner published a short volume in the form of an open letter to Dr James Jurin (baptised 1684, died 1750), a renowned scientist and physician who served as Secretary to the Royal Society, on the subject of Ward's Pills and Drops.[44]

Turner campaigned forcefully against the indiscriminate and unregulated use of mercury compounds in medicinal treatments and his hackles tended to rise when coming into contact with 'secret' medical recipes. He began by discussing the probable composition of the medicaments, concluding that they were not mercury-based, but probably, in agreement with Misoquackus, antimonial. He then turned his attention to

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the wide array of diseases for which the Pills and Drops had claimed to be effective – gout, rheumatism, scurvy, palsy, syphilis (*Lues venerea*), the King's Evil (Scrofula or Tuberculosis) and cancer. By reference to case histories he concluded that Ward's medicines were ineffectual against these diseases, and could be positively dangerous to administer. In answer to Turner's appeal for governmental intervention, Ward responded that

> I flatter myself that they are rather inclined to thank me, and desire a continuance of my care for the publick; and the more so when they examine the Bills of mortality for the year 1734 which are decreased three thousand one hundred and seventy one: Some are good natured enough to say that I have not a little contributed to that diminution and that perhaps without the help of my remedies they might have increased as many thousands and they have decreased!

Dr Jurin was also the person to whom was addressed a rapid, point-by-point counter-argued response to Turner's pamphlet.[45] The author, Edmund Packe, was the son of the chemical physician Christopher Packe, and continued his father's chemical business.[46] This was accompanied by an impassioned response in favour of Ward by Eugenius Philalethes, about whom no more is known.[47] The latter author suggested that Ward's success drew criticism from the medical establishment because 'he daily robs them of such numbers of their patients ... to the destruction of their Purses'. A closer analysis of the contents of these works is beyond the scope of the present paper (but see Hillhouse, 1928, Note 38).

The *Grub Street Journal* continued to attack 'the public's indiscriminate use of the medicines, but later castigated him openly as the friend of undertakers, coffin makers, and sextons by poisoning the sick'.[48] Ward's response was to take the Journal to court and sue for libel. The case was heard before the King's Bench Court on 3 May and 10 May 1735. Much to the delight of the editors, the case was thrown out of court.

Things quietened down for nearly a year, with only a few references to Ward and his medicines in the ensuing issues of the *Grub Street Journal*. Then, in 1736, Joseph Clutton published his pamphlet *A true and candid relation of the good and bad effect of Joshua ward's Pill and Drop, Exhibited in sixty-eight cases.* Clutton dedicated his little shilling volume to Queen Caroline (Caroline of Ansbach, 1683-1737), the wife of George II. In a rather ironic twist, Ward had recently appeared before her with eight or ten of his success stories – patients who had been supposedly cured by the Pill and Drop. The Queen had examined them, together with three of her physicians, and then congratulated Ward on his work. Thus, Clutton's work appeared at a point when Ward was actively reinforcing his royal patronage. Clutton nails his colours to the mast in his preface:

> Such who take upon themselves the Care of Health without these due and regular Qualifications, are indeed call'd Physicians, but more properly Empiricks, a word which *ex vitermini*, signifies a Practitioner by making of Experiments, and is always used in Contradistinction to the regular Physician, who has a solid Foundation of Learning and Knowledge to build on, or, as the Statute of Physician speaks, *who is groundedly learned and profoundly studied*.

The introductory accusation against Ward was clear – as an empiric he was unqualified, unlearned and, in this regard, uneducated.

After assuring readers that, if Ward's medicines had proved to be as good or better than others available on the market, he would have actively promoted them, Clutton briefly reviewed the situation up to the time of his writing. He concluded 'I cannot, however, be just to my first Principles, of being honestly concerned for the Publick good, if I cease to publish some farther Discoveries on this Head'.[49] After various disclaimers, including the fact that he does not write for profit, Clutton announces his approach and then, tellingly, directs the reader to a recently published book by Pierre Dionis (1643-1718), formerly royal surgeon and physician at the Jardin du Roi in Paris.

Dionis's book, originally published in French in 1707, had been translated into English in 1710, with a second edition dated 1733. Clutton seems to be referring to a new printing of the volume. *A course of chirurgical operations* included a section on Quacks. Dionis concluded that 'we ought to infer how dangerous 'tis to trust ones self in the Hands of such People, who rashly undertake whatever offers'.[50] Clutton also quotes extensively from Georg Ernst Stahl (1660-1734), professor of medicine at Halle University and physician and counsellor to Friedrich Wilhelm I of Prussia. Stahl spoke of 'crimes' being perpetrated by 'such unskilful Practitioners [who] will never be acknowledged by any for Physicians, but for Monsters and Poisoners'.[51]

Clutton became suspicious of the supposed remedial effects of Ward's Pills and Drops when he found an otherwise enthusiastic supporter of the medicines reticent to administer them in one particular case. Furthermore, various acquaintances of Clutton had visited Ward for the treatment of 'slight Ailments' but were 'like to have been kill'd'.[52] Resolving to 'scrutinize pret-

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ty closely into such a dangerous Medicine, which had gained such a character', Clutton was astonished by the claims that Ward's Pills and Drops effected a near miraculous cure in the case of the Lord Chief Baron's servant, Mary Betts, aged 26, 'suddenly struck with a Dead-Palsy, which intirely deprived her of the use of her Limbs'.[53] With dreadful symptoms mounting, the attending doctor pronounced her incurable, and so Ward's medicines were tried, reportedly returning her to full health. Acknowledging the Lord Baron's obviously sincere belief in the remedies, Clutton was nevertheless guided by his own case histories:

> When I considered the consequence of such a recommendation [by the Lord Chief Baron] I was deeply affected with the Hazard to which Multitudes must be expos'd, though I could do no less, as a Christian, than to publish some cases representing the bad effects of these Medicines, to prevent People from running unadvisedly into Destruction.[54]

Clutton then goes on to give an account of a direct confrontation with Joshua Ward which took place on 27 November 1734.[55] Clutton was called to a man in Holborn suffering much abdominal pain, and ascertained that he had been taking Ward's Pill and Drop. Recommending that his patient should see a physician, Clutton promised to send him some preparations to ease his symptoms. As he was leaving the house, he met Joshua Ward entering it. Returning shortly afterwards with a surgeon (J. Mason) Clutton spoke to the patient, reiterating his warning about the contents and effects of the Pill and Drop. Having been challenged, Ward protested that he treated the poor for nothing, had set up a hospital with twenty beds, and had accumulated some knowledge of Physic and Chemistry.

Rather than argue in front of the patient, Clutton suggested that they discuss things for a couple of hours at a nearby tavern, but Ward declined as 'I rise at four o'clock in the Morning and am a mere Slave for the Good of Mankind'.[56] He then claimed that he had to take action to avoid the crowds of poor people 'kneeling down, and holding up their Hands to pray for me' because of the huge numbers of cures that had been brought about by his medicines. Clutton's riposte was that the poor would accept anything that was given away, and that the pills themselves must have been very inexpensive, several thousand being produced for a penny. 'If thy Remedies did so much Good there, they have done a great deal of Hurt here'.

Ward said that he knew of no such harm being caused, and pointed to his use of them on young children as supporting evidence in favour of their mildness and efficacy. Clutton saw this as 'undoubted proof of thy Ignorance in Physick', indicating that the preparations acted in the same way as poisons did, and that he believed them to be antimonial in composition. According to Clutton's record of the conversation Ward then said 'I'll take my Oath on it, there's not one bit of Antimony in it'.

When Clutton returned to the patient later that day, he took the opportunity to taste the Drops. Having thereby convinced himself of their composition 'I thought it was as much as his life was worth to take that Potion'. Clutton then prepared the patient a healing draught. While Clutton was in attendance, Joshua Ward's brother William appeared, and a discussion ensued on the content and effects of Clutton's remedy. William Ward 'seem'd not to understand' the technical points raised by the apothecary, 'and very shyly took a hasty Leave'.

Clutton then repeated the case histories and affidavits presented earlier in the pages of the *Grub Street Journal,* accompanied by the various counter arguments and interspersed with his own observations on the discussion. This is followed by an account of the court case and then further case histories, some recounting situations where Ward's medicines were beneficial, and others where they were deleterious, the latter considerably outnumbering the former. Finally, Clutton gives an account of the experiments which he performed in an effort to identify the ingredients of Ward's medicines. He found some of the suites of symptoms contradictory and confusing, and wondered if arsenic might be a significant component.

The war of words then returned to the *Grub Street Journal*, which published long extracts from Clutton's pamphlet. William Ward published an open letter to Clutton arguing the details of the encounter detailed above from Clutton's point of view. Ward, while not professing to be a chemist, says that 'I was a Dabbler in that Art before you knew your right hand from your left', and then goes on to propose a bizarre duel-like competition in which the weapons were to be Ward's Pills, the objective being to prove or disprove Clutton's suggestion as to their composition:

> I shall propose, for a Satisfaction to the Publick, ... that you make choice of one or more Persons of your own, or any other Profession, and I will do the same, and a number of Pills shall be made in their Presence, of what you confidently assert are the component Principles of my Brother's Pill, in the same proportions as you have prescrib'd in your Book, one of which Pills shall be taken by you, and at the same time I will take a double Quantity of my Brother's

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> Pill, in a convenient Place for us both, and the Gentlemen appointed shall attend the Operation, and as soon as one dose is work'd off, we will repeat another till the Gentlemen say they are satisfied with the Experiment, by which the Publick may have some Demonstration whether your Assertions be true or false.

Clutton responded with increasingly caustic comments, answering Ward's points one-by-one. His amazement at Ward's remarks about being a dabbler in chemistry before Clutton knew right from left prompted the rejoinder that readers 'would very probably conclude this long letter, so full of words, particularly about thyself , and so empty of things, to be of no other than the effect of the talkativeness of declining age'. Giving the proposed duel-like experiment more credence than surely it warranted, Clutton concluded that it was proposed 'merely to amuse the Publick, knowing at the same time that I could not consent to it'.

The disagreement between the two men rumbled on in numbers 346 and 348 of the *Grub Street Journal*, which raised further case histories for discussion, and the analysis of supposed examples of cures. Surely the most peculiar of these was the case of 'a little crooked woman' who testified to being cured by Ward's medicine of possessing a ravenous wolf in her belly, whose presence caused her to eat two raw legs of mutton, a quarter peck of potatoes and drink two pails of beer at a single meal. Ward's medicine caused the wolf to 'fall down the flap into her belly, ever since which she had been very well'.

After 1736 the war of words moved on from arguments over case histories to Ward's means of securing testimonials, either in favour of his own point of view or denying the truth of Clutton's claims. James and Mary Gill's child, according to Clutton, had been blinded as a consequence of taking Ward's medicines. The couple maintained that they were harassed by a man wearing grey, thread-bare clothes, and who worked in Ward's shop. He sought affidavits from them contesting Clutton's conclusions about the case, trying to bribe them with fish and ale, and a promise of release of the husband after he was arrested for debt.

As time went on the arguments gradually died down. Throughout the whole episode, Ward drew derision from various men of letters, especially Alexander Pope (1688-1744), and was lampooned in doggerel and verse, as well as being immortalised by William Hogarth in his satirical engraving 'The Company of Undertakers' (alternatively called 'A Consultation of Physicians'), published on 3 March 1736 and sold for the sum of sixpence (Figure 10). Ward is located at the top

Figure 10. *'The Company of Undertakers' by William Hogarth (1736). Joshua Ward is located at top right. (Source: Wellcome Library, London)*

right of this conclave of quacks, next to Mrs Mapp, the infamous bonesetter. His birthmark has been accentuated to cover fully one half of his face.

Ward died at his house in Whitehall in 1761, leaving an estimated fortune of £16,000. A resident of the Parish of Westminster, he expressed the hope of being buried as close to the altar as possible in Westminster Abbey. In the event, he was interred at Poet's Corner in the South Transept, and a full-length statue by his Italian sculptor friend, Agostino Carlini R.A. (c 1718-1790), deemed too ostentatious for the Abbey, is now housed in the Victoria and Albert Museum (Figure 11).[57]

Following Ward's death, his friend John Page (c.1696-1799) – a former employee of the South Sea Company, and Member of Parliament for Great Grimsby, 1727-1734 and Chichester, 1741-1768 –inherited the medicinal recipes. Page published them in 1763, at long last revealing their true composition.[58] The prime ingredient was 'Glass of Antimony'. Ward's Drop consisted of half an ounce of finely ground Glass of Antimony suspended in a Quart of Sack or 'Malaga Mountain', while his pills were made from Glass of Antimony

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Figure 11. *Full length statue of Joshua Ward by Agostino Carlini R.A. (c 1718-1790). (Source: Victoria and Albert Museum, London)*

and dried and powdered Dragon's Blood (the resin from a number of Mediterranean trees, including *Dracaena cinnabari* and *D. draco*), moistened with 'good Sack, or rich Mountain Wine' and formed into troches.

Misoquackus, Turner and Clutton had all suggested that antimony was a key ingredient, with Glass of Antimony being the most likely candidate. Clutton had also suggested that cobalt and arsenic might have been present. Ward had consistently denied that antimony was present in his medicines; 'I'll take my Oath on it, there's not one bit of Antimony in it'!

Production of Ward's Pills and Drops continued after his death. It was carried out by John White and F. J. D'Osterman, two assistants whom Ward had trained to help in the setting up of his 'Great Vitriol Works' (producing sulphuric acid) in Twickenham, and who had received supporting pensions from George III that allowed them to carry on producing the medicines.

The proceeds of the sales were shared between the Asylum for Female Orphans and the Magdalen Home for Fallen Women.[59] The former institution was set up in 1758 'to preserve friendless and deserted girls under twelve years of age, from that state of wretchedness which might expose them to all the miseries of prostitution.' Their premises were an old inn, the 'Hercules Pillars' located at the junction of Westminster Bridge Road and Westminster Road, Lambeth; this was effectively a workhouse. The Magdalene Home for Fallen Women was also established in 1758, with the first Magdalene Laundry being located in Whitechapel.

Legacy

Joseph and Mary Clutton had seven children, but only two survived to adulthood. Their brief details are as follows:[60]

- Morris, born in April 1726, died 1754;
- Richard, born in July 1727, and lived only 9 days;
- Thomas, born on 26 October 1729 and survived only 1 day;
- A stillborn child on 8 March 1733;
- Esther, born on 20 June 1731 and died of consumption on 24 March 1740, aged 8;
- Mary, born on 7 April 1738, and grew up to marry Joseph Biddle of Esher, 4 March 1760;
- Sarah, born in January 1739, died July 1742 aged two and a half years.

Joseph clearly exercised considerable acumen in building up his business. He finally succumbed to a long bout of consumption in 1743. I have been unable to trace the final value of his estate, but when he wrote his last will and testament on 6 October 1742, he was able to bequeath £1,500 to his wife in trust for his son, Morris, and a further £1,000 in trust for his daughter (Mary), to be disbursed when they respectively came of age (21 years old).[61]

Mary Clutton senior received an annuity of £200 per annum and the remainder of the estate, including some specified items – 'goods and ffurniture in one of my Garretts over the same at her option except my great Mahogany Table and Scritoire ... and also give and bequeath to her my Silver Tankard Six silver spoons, Six Tea Spoons and smallest soup spoon'. She was also given instructions that Joseph's erstwhile apprentice, Thomas Corbyn (1711-1791), should 'take my dwelling ... with the appurtenances in Holborn in the County of Middlesex and the Lease thereof and all the Stock then in Trade there'.

Joseph intended for his son to carry on the business after his death, and instructed that his wife should 'carry on my trade therewith for his benefit until he shall

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attain his age of twenty one years and on his attainment of that age to quit and give up the same of the produce and profits thereof to him'. Mary certainly did do that; the Hampshire County Hospital, based at Winchester, was founded in 1736, and in 1739 Joseph Clutton was appointed as its chemical supplier. The governors of the hospital received notice of Joseph's death on 12 July 1743, and resolved 'that Mrs Clutton be appointed to serve the hospital with chymical medicines'.[62]

Joseph had given increasing powers and responsibility for the day-to-day running of his firm to Thomas Corbyn in the final months of his life. On Joseph's death, Thomas Corbyn and Mary continued – effectively in partnership – the domestic wholesale trade which had been built up by Joseph's efforts. In the meantime, Corbyn had been given the independence to engage in foreign trade, which he began to exercise in 1742. Corbyn built up substantial transatlantic trade links over the next decade with a number of substantial outlets established in America, Barbados and the West Indies.[63] He became a prosperous merchant.[64]

Morris came of age in 1747 and took over Mary's position. Mary remarried in August that same year, to Thomas Reynolds, a Quaker merchant (a colourman, i.e. a manufacturer and seller of paint) from Southwark in London.[65] This was Reynolds' second marriage; he had 3 children from his first marriage, but his union with Mary was childless. Mary died of consumption on 6 March 1756 at the age of sixty.[66] Morris died in 1754 and Thomas Corbyn acquired sole ownership and control of both domestic and foreign trade. He continued to build the business, which flourished as a wholesale, retail and manufacturing chemist and druggist concern through the remainder of the eighteenth and on into the mid-nineteenth century. The firm was eventually liquidated in 1927.

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SHORT COMMUNICATION

Trinity of proponents of Indian indigenous drugs: William Dymock (1832-1892), Charles Warden (1851-1900) and David Hooper (1858-1947)

Harkishan Singh

Abstract

A trio of professionals played important roles in promoting Indian materia medica in the late nineteenth century. William Dymock (1832-1892), a member of the Royal College of Surgeons of England, became Principal Medical Storekeeper of Bombay and professor of materia medica at Grant Medical College. Charles Warden (1851-1900) held the position of professor of chemistry at Calcutta Medical College and was appointed Chemical and Opium Examiner to the Bengal Government. David Hooper (1858-1947) qualified as a pharmaceutical chemist and worked as Quinologist to the Government of Madras. Later he was appointed curator of the Economic and Art Section of the Indian Museum, Calcutta. Together Dymock, Warden and Hooper authored the series *Pharmacographia Indica.*

Introduction

My motivation for studying proponents of Indian indigenous drugs emerged from the legendary multifaceted medico-pharmaceutical professional Ram Nath Chopra, who was the subject of one of my earlier studies.[1] He was a pioneer of systematic studies of Indian indigenous drugs. Subsequently, while working on Indian pharmacopoeial history, I got to know about two other Indian indigenous drugs pioneers, Waring and Sheriff, who had respectively prepared the *Pharmacopoeia of India* of 1868 and its *Supplement* in 1869, and in later years I worked on the lives and contributions of both of them.[2, 3]

The above are selective references to the pioneers who I got to know through my studies as a historian, but my personal interest was always there in this field, as my doctoral thesis at the Banaras Hindu University (1956) was based on studies of an Indian medicinal plant. In addition to Ram Nath Chopra, Edward John Waring and Moodeen Sheriff, I have carried out studies on Kanny Lall Dey,[4] Whitelaw Ainslie,[5] Udoy Chand Dutt,[6] and Jean Filliozat.[7]

William Dymock (1832-1892)

For biographical coverage about William Dymock I have relied on writing by Surgeon-Captain B. D. Basu of the Indian Medical Service (I.M.S.).[8] This in turn is based on a sketch by Warden and Hooper which appeared in the sixth part of the *Pharmacographia Indica,* which has not become available to me. The portrait was drawn from a photograph of Dymock sent by Hooper.[9]

William Dymock was born in England on 10 August 1832. After education at Rugby School he graduated from the University of Oxford. He joined the Bristol School of Medicine and became a member of the Royal College of Surgeons of England in 1854. He was appointed assistant surgeon to the Bombay Medical Establishment in February 1859. He served in the Indian Navy for two years.

In 1868 Dymock was appointed acting resident surgeon to the European General Hospital. In 1871 he became principal storekeeper of Bombay, as well as professor of materia medica at Grant Medical College. It was in these capacities that he started investigating the properties of indigenous drugs. He made special studies on the subject, and from 1876 to 1880 he contributed to the "Notes on Indian Drugs" pages of the *Pharmaceutical Journal*, published by the Pharmaceutical Society of Great Britain.

It showed his seriousness in studies of Indian drugs that he learnt several oriental languages. He was proficient in Arabic, Persian, Sanskrit, Hindustani, Marathi and Gujarati. He was also familiar with Greek and Latin, and corresponded freely in French, German and Portuguese.

Dymock's *Vegetable Materia Medica of Western India* was first published in 1883. The publication was well received. A second edition was called for within less than two years, and this was published in 1885. Subsequently he entered into collaboration with Warden and Hooper, as discussed later, in bringing out a series of *Pharmacographia Indica.*

While building my personal archival collection I came across a copy of Dymock's *Vegetable Materia Medica of Western India* at the Connemara Public Library in Madras (now Chennai), which was in very fragile condition; a few selected pages could be photocopied. The year of publication is uncertain; it may have been either the 1883 or 1885 edition. Photocopies available to me at this stage include the preface and most of the contents pages. It was a voluminous treatise; the last entry in the contents of the appendix started with page 717. The drugs are entered as per Natural Order.

For his investigations into the indigenous drugs of India he was conferred with honorary membership of the Pharmaceutical Society of Great Britain; he also received the Society's Hanbury Gold Medal in 1887. Dr Dymock became Surgeon-Major in 1873 and Brigade Surgeon in 1886. He retired from service on 30 April

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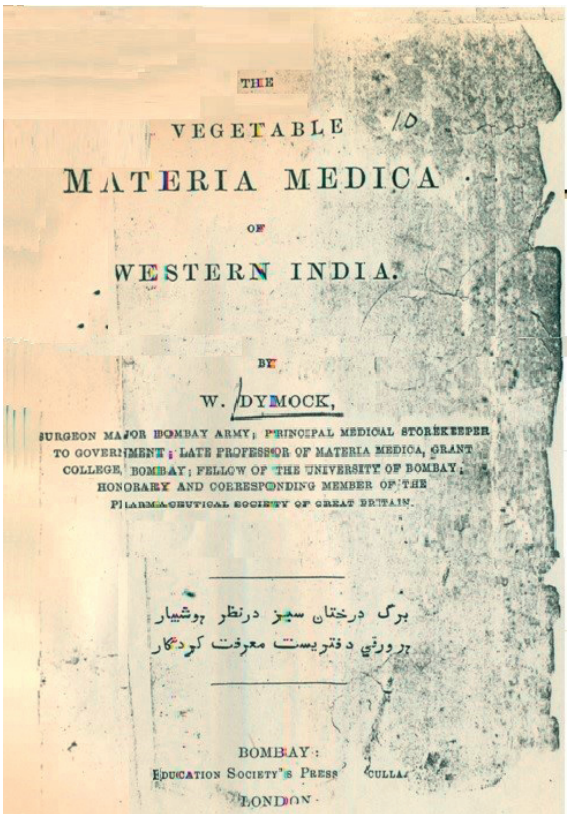
Figure 1. *William Dymock, 1832-1892 (Source: Medical Reporter 1894, 3, 15)*


THE

VEGETABLE

MATERIA MEDICA

OF

WESTERN INDIA.

BY

W. DYMOCK,

SURGEON MAJOR BOMBAY ARMY; PRINCIPAL MEDICAL STOREKEEPER TO GOVERNMENT; LATE PROFESSOR OF MATERIA MEDICA, GRANT COLLEGE, BOMBAY; FELLOW OF THE UNIVERSITY OF BOMBAY; HONORARY AND CORRESPONDING MEMBER OF THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.

برگ درختان سبز درنظر هوشیار

هرورقي دفتريست معرفت کردگار

BOMBAY:

EDUCATION SOCIETY'S PRESS

LONDON

Figure 2. *Title page of Vegetable Materia Medica of Western India (Source: Medical Reporter 1894, facing page 15)*

1890, and died two years later on 30 April 1892 at his residence on Malabar Hill, Bombay (now Mumbai).

Charles Warden (1851-1900)

Through my correspondence with the Wellcome Institute I learnt that Charles Warden lived between the years 1851 and 1900.[10] Through the Institute I also learnt about his joint publication on the poison abrus.[11] *Abrus precatorius* (commonly known as jequirity or Crab's eye) has highly toxic seeds. When I started the current studies this is all the information I had in hand. Later, I came across a short note on Warden, his photograph[12] and an obituary,[13] on the basis of which I recorded the following brief profile of him.

Charles James Hislop Warden was the only son of Captain Charles William Warden of St. Helier, Jersey in the Channel Islands. He studied medicine at St. George's Hospital in London, and became a member of the Royal College of Surgeons of England in 1872.[14]

He entered the Indian Medical Service in 1874 and was appointed to Bengal, eventually reaching the rank of Lieutenant-Colonel. C. J. H. Warden was an officer of great scientific attainment who did excellent work during his 25 years' service in India. As a student he took up chemical analysis, and in this branch he won considerable distinction later on whilst in the employment of the government. In 1879 he was selected while

Figure 3. *C. J. H. Warden, 1851-1900 (Source: Chemist & Druggist 1895, 46, 148)*

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still quite junior for the post of professor of chemistry in the Calcutta Medical College, and as Chemical and Opium Examiner to the Bengal Government. He was associated with important experiments in connection with the adulteration of country spirits. During a period of leave of absence (furlough) in 1884-85 he took up bacteriology, and employed his leave in gaining knowledge of testing water, food-stuffs and explosives.

On returning to India he had ample opportunity to do good work as Chemical and Opium Examiner, and eventually he was given the appointment of medical storekeeper in Bengal. Lieutenant-Colonel Warden was instrumental in carrying out the reorganization of medical depots in India, and he significantly augmented the scope of manufacturing operations where drugs were concerned. His analysis of indigenous drugs was of the highest order, and his writings on chemical subjects were of the greatest value and always attracted attention. He served on the Hemp Drugs Commission in 1893.

The Government of India appointed a committee to enquire into the desirability of a more extended use of indigenous drugs in India; Charles Warden was one of the members of the committee.[15] He attended its first and second meetings held on 3 January 1896 and 9 January 1896 respectively.[16]

In the obituary of Warden which appeared in the *Indian Lancet* it was stated that 'his whole service was devoted to scientific work, and India lost a good servant when he was appointed, last year, to be Examiner of Medical Stores at the India Office.'[13]

David Hooper (1858-1947)

David Hooper, who qualified as a pharmacist in Britain, spent three decades of his career in India. His work largely related to cinchona plantations and to the study of Indian indigenous drugs.[17]

He was born at Redhill, Surrey, in 1858 and was educated at Chelmsford. In 1880, as a student at the school of the Pharmaceutical Society of Great Britain, he qualified as a pharmaceutical chemist. He then spent three years in the laboratories of pharmaceutical firms in London, gaining experience in the analysis of natural drugs. In 1884 he was appointed Quinologist to the Government of Madras. He spent six months in Holland studying records of cinchona planting in Java and Dutch methods of quinine manufacture, before proceeding to Ootacamund in Madras to take up his official appointment, which he retained until 1896.[18]

Between 1897 and 1914 Hooper was curator of the Economic and Art Section of the Indian Museum, Calcutta. On his retirement in 1914 he returned to England. Hooper was a prolific writer. His most important work was on Indian indigenous drugs; he associated

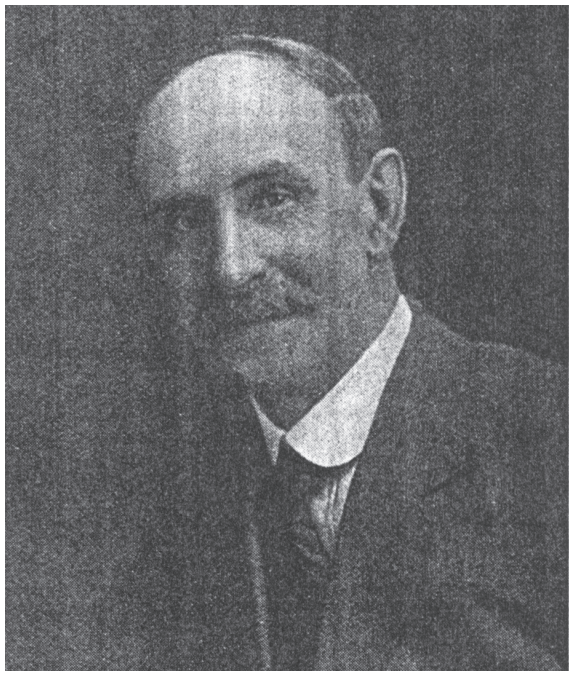

Figure 4. *David Hooper, 1858-1947 (Source: Chemist & Druggist 1933, 118, 15)*

with Dymock and Warden in bringing out a series of *Pharmacographia Indica*.

Hooper was awarded the Hanbury Gold Medal by the Pharmaceutical Society of Great Britain in 1907. In 1914 he was given the honorary degree of LL.D. by the McMaster University of Toronto, and in 1916 he was president of the British Pharmaceutical Conference. He joined the Chemical Society in 1883; and he was a Fellow of both the Royal Institute of Chemistry and of the Linnean Society.

Apart from this biographical material about Hooper, information has become available pertaining to certain activities which deserve attention. Hooper was joint author of an introduction to Indian materia medica, which was well received;[19] it was recommended as a textbook on the subject for students in Indian Medical Colleges and as a handbook for general practitioners.[20] Hooper edited and completed the *Materia Medica of Madras* (1891) on the death of the author Moodeen Sheriff.[21]

The history and status of *Akakia* or *Aqaqiya*, an ancient eastern medicine, was traced by Hooper.[22] It is also noted that he reported that an extract called cutch or catechu was made from the wood of *Acacia catechu*.[23]

Publications co-authored by Dymock, Warden and Hooper

While building my archival collection a copy of a special issue of the journal *Hamdard*[24] became available to

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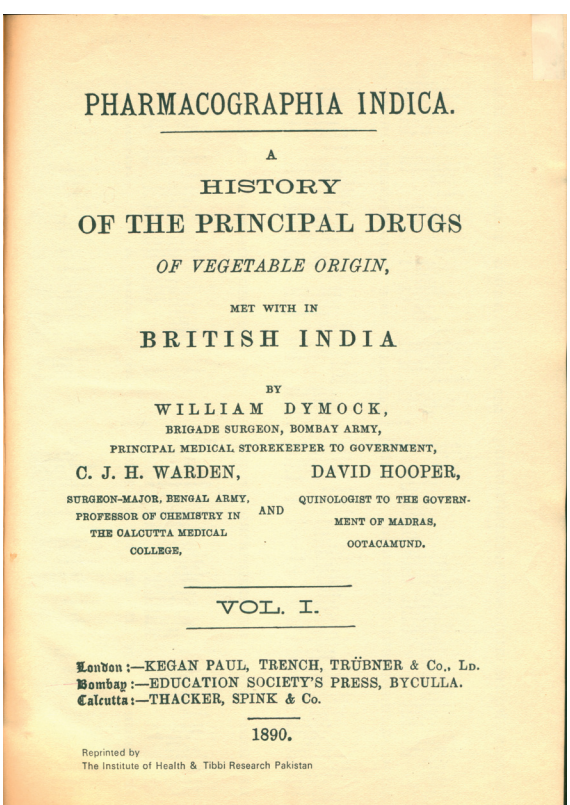
me; this referred to the reproduction of Volumes I to III of the *Pharmacographia Indica: A History of the Principal Drugs of Vegetable Origin met with in British India* authored by William Dymock, C. J. H. Warden and David Hooper. In the preface to Volume I it was stated:

> The available information concerning the drugs and medicinal plants of India is scattered through a number of books and periodicals in various languages, as well as official documents, which have only had a very limited circulation.' [The authors have]…endeavoured to collect and verify this information, and supplement it where deficient by original investigation especially directed towards elucidation of the chemical composition and physiological action of the plants and drugs.[25]

The entries of the drugs and medicinal plants were placed in family order, and in each entry information was provided under headings which included Figure; Habitat; History; Uses, & c.; and Description.



PHARMACOGRAPHIA INDICA.

A

HISTORY

OF THE PRINCIPAL DRUGS

OF VEGETABLE ORIGIN,

MET WITH IN

BRITISH INDIA

BY

WILLIAM DYMOCK,
BRIGADE SURGEON, BOMBAY ARMY,
PRINCIPAL MEDICAL STOREKEEPER TO GOVERNMENT,

C. J. H. WARDEN,
SURGEON-MAJOR, BENGAL ARMY,
PROFESSOR OF CHEMISTRY IN
THE CALCUTTA MEDICAL
COLLEGE,

AND

DAVID HOOPER,
QUINOLOGIST TO THE GOVERNMENT OF MADRAS,
OOTACAMUND.

VOL. I.

London :—KEGAN PAUL, TRENCH, TRÜBNER & Co., Ld.
Bombay :—EDUCATION SOCIETY'S PRESS, BYCULLA.
Calcutta :—THACKER, SPINK & Co.

1890.

Reprinted by
The Institute of Health & Tibbi Research Pakistan

Figure 5. *Title page of Pharmacographia Indica, Volume I (Source: published by Kegan Paul, Trench, Trübner & Co. London in 1890)*

Volume I was published in 1890. The information included related to 598 drugs and medicinal plants. The largest number of entries was for members of the *Leguminosae* family. The publication was well received. In a review in the *Indian Medical Gazette,* the original of which has not become available, it was stated: 'To those who are interested in the materia medica of India, we advise [them] to obtain *Pharmacographia Indica,* as being [a] reliable source of reference on the subject'.[26]

Volume II appeared in 1891 and provided appropriate information on 642 plants, the largest number of entries being from the *Compositae* family.[27] William Dymock passed away in 1892 although his name continued to appear as the senior author. Volume III was published in 1893.[28] Thereafter an index and appendix to the series was published.[29] Warden and Hooper reported that 'in issuing the Index and Appendix the Authors wish to state that supplementary volumes of the *Pharmacographia Indica* will be published as material becomes available.'[30]

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DOCUMENTS AND SOURCES

Early ethnopharmacological information from Madagascar in a missionary's correspondence from 1832

Axel Helmstädter

Abstract

A letter written in 1832 by the English Congregational missionary Joseph John Freeman (1794-1851) is presented as an early and hitherto hardly known document of medicinal plant use on the island of Madagascar in order to explore its role for further ethnopharmacological studies. Information about the traditional uses of 59 medicinal plants, given with their vernacular names only, is documented. Botanical names were preliminarily assigned to the species according to standard literature. For a variety of species, including *Emilia graminea, Kotschya strigosa* (Benth.) and others a considerable knowledge gap between traditional reports and current study results is assumed. They are, after careful validation of their botanical identity, recommended for further investigation of their traditional uses and their potential as medicinal plants.

Introduction

In recent decades, historical sources have moved into the focus of ethnopharmacological research, as it has been shown that traditional uses of medicinal plants might help in identifying plant species for pharmacological screening.[1, 2] Among the sources investigated were ancient papyri[3], writings from classical antiquity[4], Renaissance herbals[5], the heritage of exploring botanists[6], and in particular the work of Christian missionaries, mainly belonging to the Order of Jesuits. Initially relying on European materia medica, they soon discovered the medicinal virtues of plants in their host country. Some of them published comprehensive summaries of local medicinal plants which are now valuable sources of ethnopharmacological information.[7, 8, 9] Jesuits seem to be most prominent in this respect, but there are also available pieces of information of a totally different origin.

Among the thousands of letters preserved in the Archives of the Royal Botanic Gardens at Kew, London, a letter about medicinal plants used on the island of Madagascar, written by the English Anglican missionary Joseph John Freeman (1794-1851), was found. In a letter to Charles Telfair (1778-1833) written on 22 June 1832, the Madagascar based British missionary reported on the use of medicinal plants on this island. The letter (Kew Directors Correspondence DC 53/72) can certainly be regarded as an early testimonial on medicinal plant use in Madagascar. Freeman estimated that 300 to 400 herbs were regularly used for medicinal purposes, and that many of them were also involved in magical procedures. He then shortly discussed the use of *Euphorbia splendida* Mobayyen as a "violent emetic," and of 'Tangena' a poisonous plant commonly used to detect sorcery – as an example of magic practices. 'Tangena' was indeed widely used in trials by ordeal to determine the guilt or innocence of an accused party.[10, 11]

The letter additionally included a list of 57 medicinal plants, identified according to their vernacular names only; some also contain comments regarding their medicinal use. The aim of this study was to describe the life and work of the correspondence partners, Freeman and Telfair, and to explore the role of this unique historical document in furthering ethnopharmacological studies into the flora of Madagascar.

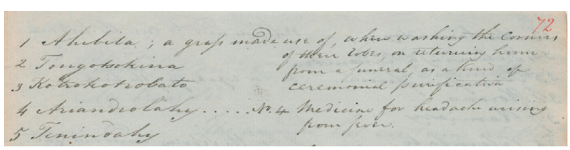

Figure 1. *Detail from letter written by Freeman. (Source: Kew Archives, with permission)*

Joseph John Freeman

Joseph John Freeman was born in London on 7 October 1794. He started his clerical education as a disciple of a Sunday school in 1804 and was appointed as a teacher there at the early age of fourteen. Later, as a college student, he developed a serious interest in missionary work, but he was not successful in being accepted by the London Missionary Society (LMS), a fact that drove him into deep depression.

In May 1816 he was instituted as co-pastor at Chelmsford Congregational Church, Essex, but he resigned after two years due to mental distress and fatigue. He returned to London "overcome by a dangerous sickness, in which he suffered extreme pain and exhaustion".[12] Eventually he experienced recovery as a co-pastor of a small church in the Spa town of Dawlish, Devon, before he moved to Westbury, about 29 km Southeast of Bath, an area seriously affected by economic depression due to the mechanization of weaving, formerly the main business there, so "many in Freeman's congregation found themselves on the edge of starvation".

In July 1820 Freeman moved to take up a vacant pastorship in the Congregational Church in the pros-

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Figure 2. *Portrait of Joseph John Freeman (1794-1851) in 1841. (Source: Campbell 2012)* [12]

perous town of Kidderminster, but he still felt a strong calling to devote himself to missionary work. Eventually he succeeded in being assigned to a Madagascar mission in March 1827, and he began his journey in July the same year. The LMS had offered him a six year contract for supervisory control of the Madagascar mission which had been developed by David Griffith (1792-1863) and David Jones (1796-1841).

According to Campbell,[12] Freeman – despite his early devotion to missionary work – concentrated on representative duties rather than pastoral care. He

> "wished to have no direct involvement in evangelization. Unabashedly ambitious, he proved a master strategist in promoting his goal of attaining public recognition as the head of the Madagascar mission and spiritual representative of the English crown in the island. Confident and vainglorious, he further demonstrated a life-long obsession with expensive high-profile projects to which he could attach his name".[13]

In this context, Freeman emerged as the editor of a number of book publications, including *A Dictionary of the Malagasy language*.[14]

Freeman stayed in Madagascar with interruptions until September 1835, when he returned to England and became an evangelical celebrity; he became LMS director in 1841. In 1851 Freeman's health deteriorated rapidly, as he suffered from exhaustion and anxiety. Seeking relief, he travelled to the German spa town of Bad Homburg, but he was afflicted by rheumatic fever there. He died on 6 September 1851, and two days later he was buried in the English section of Bad Homburg cemetery.[15, 16]

Figure 3. *Portrait of Charles Telfair on a stamp issued in Mauritius. (Source: Colnect)*

Charles Telfair

Charles Telfair was born in Belfast, Ireland, in 1778 and started to study medicine and philosophy at the University of Glasgow, but in 1797 – before completing his medical studies – he joined the Royal Navy as a medical officer. During his journeys, he developed a passion for natural history, thereby collecting plants and seeds. In 1810 he came to Reunion and Mauritius, where he later became an assistant to Governor Farquhar. In addition to many other posts and activities he donated seeds and plants for a British settlement on Madagascar and prompted the early missionaries there to introduce pears, cherries, apples and peaches.[17]

In 1818 he married Annabella Chamberlain, who was also interested in botany and who drew sketches of his collections. Both stayed in contact with the famous botanist William Jackson Hooker (1785-1865), who became the first director of the Royal Botanic Gardens at Kew in 1841. Telfair also established botanical gardens on Mauritius and Reunion, which certainly would have contributed to his reputation as a botanical expert. As he also had some kind of a medical education, he might have been interested in medicinal plant use as well.

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Charles Telfair died in Port Louis, Mauritius, on 14 July 1833.[18] According to the Kew Gardens database, Telfair donated more than one hundred different herbarium specimens to Kew, mainly from Mauritius.

Table 1. *Medicinal plants listed by Freeman: traditional uses and current study results*

Name acc. to Freemann	Comment by Freeman	Botanical identity[19]	Traditional use[19, 20]	Pubmed entries (May 2018)
Songosongo (*Euphorbia splendida*)	Violent emetic	*Euphorbia splendens*	Magic, drug for long life, drastic purgative	20
Tangena	Powerful purgative, to detect sorcery	*Cerbera venenifera* (syn. *C. manghas*)	Severely toxic, magic	1
Ahibita	A grass made use if, when washing the [...] of [their?] [robes?] on returning home from a funeral as a kind of ceremonial purification	*Floscopa glomerata*; *Pycreus mundtii*	Magic	F. g.: 0 P. m: 1
Tongotsokina		*Lycopodium clavatum; Lycopodiella cernua*	Magic	L. clav.: 65 L. cern.: 7
Kotrokotrobato		*Kalanchoe laxiflora*		1
Ariandrolahy	Medicine for headache arising from fever			
Tenindahy		*Gladiolus garnieri*	Bulb as laxative	0
?	Fern			
Aikia	Indigo. The root is employed as a medicine for the toothache	Aika: *Indigofera tinctoria*, also *I. anil*, *I. erecta*	[Against convulsions of infants, expectorant, against asthma]	I. t.: 38
Volokotona				
Rambonalikia		Rambonalika: *Pennisetum polystachyon*		3
Hantaka		Tree not identified, soft red wood Hantake: *Dolichos lablab*		D. l.: 93
Harangana				
Rafy		*Maesa lanceolata*	Anthelminthic, for dermal application	35
Anandrambo		*Crassocephalum rubens*	Against enteritis	2
Beravina	a dye	*Crotalaria incana, C. saltiana*, *Indigofera pedunculata*		C. i.: 4 C. s.: 3 I. p.: 0
Hohafoha, or Tsimpohafoha		*Biophytum sensitivum*	Magic	32
Vatofosa		*Achyranthes aspera*	Burned as potassium source [Roots against rheumatism, urinary and pulmonary ailments, syphilis; leaf juice against injuries]	128
Ananakondro		*Nasturtium barbareaefolium* or *Celosia trigyna*		N. b.: 0 C. t.: 2
Beroberoka		*Lactuca indica* or *Sonchus oleraceus*		L. i.: 11 S. o.: 58

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Name acc. to Freemann	Comment by Freeman	Botanical identity[19]	Traditional use[19, 20]	Pubmed entries (May 2018)
Somangy		*Thilachium sumangui* or *T. panduriforme* or *Boscia madagascariensis*	Headache, nose bleed, aphrodisiac	T. s.: 0 T. p.: 0 B. m.: 0
Anampoza		*Cineraria anampoza*, also *Emilia adscendens*, *E. humifusa*	Wound healing, antibiotic	C. a.: 0 E. a.: 0 E. h.: 0
Tsingovohovo	Medicine used when the skin becomes discoloured [...] or if in incipient leprosy	Tsingovihovy: *Ipomoea wightii, I. purpurea*		I. w.: 0 I. p.: 84
Sangasanga-nandevolahy	Fever medicine	*Hyptis pectinata* or *Salvia coccinea*	Pediatr. against cough and other pediatric diseases	H. p.: 26 S. c.: 3
Tanikandro	Remedy for [...] itch	*Emilia graminea*	Externally against lip ulcers, syphilis, scabies	0
Ampakanomalona				
Ahibitisikia		Ahibitsika: *Oldenlandia corymbosa*; *O. lancofilia*; *O. heynii*		O. c.: 8 O. l.: 0 O. h.: 0
Volondrano		*Lagarosiphon madagascariensis*; *Eriocaulon fluitans*; *Nymphoides indica; Ludwigia abyssinica*	Against inflammation	L. m.: 0 E. f. *(E. setaceum)*: 0 N. i.: 6 L. a.: 0
Herifotsy				
Tsitongotra	for Tsitongotramboabe	*Phellolophium madagascariense; Peucedanum bojerianum*	Great medicinal reputation	P. m.: 1 P. b.: 0
Borona	For the tooth ache	*Tetradenia fruticosa*; *Lasiosiphon ambondrombensis*	T. f.: wound treatment, against wound infections, intern. against dermatoses, scabies; emetic	T. f.: 0 L. a.: 0
Lanjananahary	Used as a charm for attaining blessings	*Leucas martinicensis* and *Anisomeles ovata* (= *indica*)	Prophylactic against "eruptive fever", against headache, bronchitis	L. m.: 3 A. o.: 3 A. i.: 23
Fany (?)	The root is used in washing the natives clothes	*Entada chrysostachys* or *E. abyssinica* or *Cassia* (=*Senna*) *anthoxantha* or *Paullinia pinnata L.*	P.p. abortifacient	E. c.: 0 E. a.: 15 C.(S.) a.: 0 P. p.: 21
Ariandrovavy (?)	For the headache			
Ambarivatry	Leaves used to cure the toothache	*Cajanus indicus* Spreng. = *C. cajan* (L.) Millsp.		C. i.: 29 C. c.: 417
Kelimanjakalanitra		*Mimosa pudica* or *Cassia mimosoides* or *Oxalis sensitiva* (= *Biophytum sensitivum)*	Several species used as a charm against bad weather etc.	M. p.: 206 C. m..: 6 B. s.: 32
Tsimpimpina	For weakening of the limbs	*Eleusine indica*, *E. africana*, *Dactyloctenium aegyptium*, *E. coracana* with *Equisetum ramosissimum*	Against sprains, contusion, bruises	E. i.: 61 E. a.: 0 D. a.: 4 E. c.: 164 E. r.: 15

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Name acc. to Freemann	Comment by Freeman	Botanical identity[19]	Traditional use[19, 20]	Pubmed entries (May 2018)
Horona				
Ramiary		*Datura alba*, *D. tatula (=D. stramonium* L.*)*, *D. metel* or *Senecio decaryi* or *Kalanchoe integrifolia*		D. a.: 6 D. t.: 13 D. s.: 989 D. m.: 98 S. d.: 0 K. i.: 0
Volombato	For the [...], mixed with fat	Various mosses and lichens. "Moss found on stones"[31]		
Tapabatana	Poison	*Tachiadenus longiflorus,* rarely *T. platypterus*, also *Rhodocodon madagascariensis*	R. m. severely toxic, against rats and mice	T. l.: 3 T. p.: 0 R. m.: 1
Volotara		*Phragmites mauritianus*		7
Olimaro (?)				
Voafotsy		*Aphloia theiformis*		6
Ampelantsifotriavy (?)				
Kiranjay		*Ocimum canum* or *Tagetes erecta*		O. c.: 29 T. e.: 138
Sitrakovoafery	For wounds	Sitrakovoaampery = *Ethulia conyzoides*		3
Riadriatra		div., *Philippia floribunda* (= *Erica baroniana*), *Myrothamnus moschatus*, *Lantana camara*	M.m. as narcotic, like cannabis	P. f.: 0 E. b.: 0 M. m.: 3 L. c.: 287
Famakitakotra	For the fever	*Cissus microdonta*		0
Loviantsahona	For diseases caught by bathing* * This universal belief seems to be established that many of the diseases are caught by bathing in infected water [… ?]	*Hydrocotyle umbellata*; *H. hirta*; *Centella asiatica*[21]	[C. a.: Leprosy, syphilis]	H. u.: 4 H. h.: 0 C. a.: 574
Verotsanjy		*Hyparrhenia cymbaria* or *H. hirta* or *H. variabilis*		H. c.: 1 H. h.: 12 H. v.: 0
Taintona		*Phyllanthus casticum*, *P. fuscoluridus*, *P. madagascariensis*	Colic, diarrhoea	P. c.: 1 P. f.: 0 P. m.: 2
Antsointsoina	In the itch & […?]	*Emilia citrina*		0
Tsindahoro	For slight wound	*Sida rhombifolia, S. acuta*, *Waltheria indica*, *Melochia corchorifolia*	Against furuncles, abscesses; root extract intranasally against influenza. Cont. small amounts of ephedrine [S. r.:chewed leaves against furuncles and tumors, emollient compresses, aq. root extract against dysentery]	S. r.: 29 S. a.: 32 W. i.: 12 M. c.: 2

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Name acc. to Freemann	Comment by Freeman	Botanical identity[19]	Traditional use[19, 20]	Pubmed entries (May 2018)
Hazonorana		*Anthospermum emirnense*	Magic	1
Rohibe	The indigenous Hibiscus. The petals are […?]	Roibe: *Hibiscus diversifolius*	Flowers against lung diseases, boiled leaves against bronchitis	0
Tsantsambaitra		*Helichrysum emirnense* (= *H. fulvescens*), *H. cordifolium*[21]	H. e.: Ointment against adenitis, chewed leaves for wound healing and antibiotic, against bleeding, decoction against airway infections [locally against ulcers, tumors, abscesses]	0
Tsikobona	Decoction used in fevers and syphilis	*Sarcobotrya strigosa (= Kotschya strigosa* syn. *Smithia strigosa)*	Decoction against post partum bleeding, against proteinurea in pregnancy, crushed seeds against vomiting and dysentery, powdered bark for cleaning of teeth and to strengthen gingiva [against. toothache]	0
Sofintotozy	The name signifies mouse-ear. It is not the same as ones of that name in England	*Hypoestes trichochlamys*; *Geniosporum thymifolium* (= *Platostoma thymifolium)*; *Wahlenbergia madagascariensis*	Sofina = ear, totozy = mouse; H. t.: chewed leaves strong remedy against wounds G. t.: against cracky feet, prevention of pediatr. diseases	0

Ethnopharmacological information

Table 1 lists the names of the medicinal plants, as well as the comments made by Freeman from time to time (27 out of 59; 45.8%). The indications mentioned most often are fever, pain and skin diseases. The table also gives a preliminary identification of potential botanical species and information about their medicinal uses according to a freely available online dictionary,[19] and comprehensive reviews about medicinal plants in Madagascar.[20, 21]

To get an idea about the degree of scientific investigation of the respective species, the number of Pubmed entries is given. In summary, for 12 out of the 59 medicinal plants potentially described by Freeman (20.3 %) no PubMed entry could be identified (last access May 2018), so that there is plenty of room for phytopharmaceutical investigations. *Emilia graminea* (Tanikandro) might be a primary candidate, because traditional indications listed by Freeman could already be confirmed by independent sources. The plant is recommended by Freeman against itch and confirmed as being useful against itching skin diseases like scabies [22, 23], lip ulcers (herpes?) and syphilis. Internal use may be limited by the contents of pyrrolizidine alkaloids.[24]

Other plants mentioned by Freeman have been confirmed as being medicinally used but indications given could not be confirmed. However, they also deserve a closer scientific look. Tsikobona (*Kotschya* (syn. *Sarcobotrya* syn. *Smithia*) *strigosa*), for example, is described by Freeman as traditionally used against fever and syphilis, and by other sources against post-partum bleeding, proteinurea in pregnancy, vomiting and dysentery, for cleaning of teeth and against toothache. Encyclopaedic sources[25, 26] allow a reliable identification of the species and its synonyms; they also give dental maladies as an indication. *K. strigosa* is a known insecti-

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cidal[27] but there are no further pharmacological investigations so far.

Tsindaharo, most probably to be identifed as *Sida rhombifolia* L., has, according to Freeman, been used "for slight wound". This statement corresponds with indications like "furuncles",[28] or "furuncles, and tumors, as emollient compresses etc".[29] In fact, it has been shown that *Sida* species do contain compounds with several effects including activity against "skin ailments".[30]

The term Volombato has obviously been used for various mosses and lichens and is characterised by Freeman himself in his *Dictionary of the Malagasy Language* as a "moss found on stones".[31] This entry suggests that use of the term was probably rather common on the island at that time. Which particular species were actually used for which purposes remains to be clarified and highlights the challenge of accurately identifying plant species mentioned in historical sources.

Discussion

For interpretation of the historical document presented here, the fact that only vernacular names are given presents particular challenges. To correctly identify the botanical species behind the traditional names, supporting ethnopharmacological field studies and surveys are necessary. Similar difficulties may result from medicinal terminology. For example, Schuster[32] recently discussed the different meanings of the term fever throughout history, not at all being limited to the symptom of raised body temperature. The examples given above can therefore indicate the direction in which new investigations might take.

Nevertheless, and because there are only a few reports on traditional uses of medicinal plants in Madagascar,[33] the letter, written as early as 1832, may add some new elements to our knowledge about the ethnopharmacology of this island. At this stage, however, the information from the letter must not be over-interpreted and Freeman's observations as well as plant identification should be verified further. In particular, terminology and uses have to be ascertained, for example by field studies or surveys among local healing personnel and a careful evaluation of the traditional uses of particular plants.

It is interesting to note that only a few plants mentioned by Freeman are listed in common publications about the ethnopharmacology in Madagscar.[34, 35] From this point of view, it seems worthwhile to use them as a starting point for further investigations into the traditional uses of the plants mentioned.

Information about indications in the letter along with current study results on the species suggested to match the vernacular names may function as guardrails in this process. Evaluated historical information together with carefully explored traditions may eventually lead to the suggestion of plants species for phytopharmacological studies. This is important, as it has been stated, that

> "ethnopharmacological information is in danger of being lost in Madagascar as slash and burn agriculture destroys much of the forest, and the elder traditional healers, often illiterate, pass away without handing down their knowledge".[36]

On the other hand, the neglect of several plants described by the missionary as medicinally used may also indicate their insignificance. In any case, the information derived from the historical document deserves further investigation.

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